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L4: Entry 1 of 1   File: USPT   Jul 23, 2002

US-PAT-NO: 6424998
DOCUMENT-IDENTIFIER: US 6424998 B1

TITLE: System permitting the display of video or still image content on selected displays of an electronic display network according to customer dictates

DATE-ISSUED: July 23, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hunter; Charles Eric	Hilton Head Island	SC		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
World Theatre, Inc.	Morrisville	NC			02

APPL-NO: 09/ 315111   [PALM]
DATE FILED: May 18, 1999

PARENT-CASE:
CROSS REFERENCE TO RELATED APPLICATION This application is a continuation in part of Ser. No. 09/301,102, filed Apr. 28, 1999 pending.

INT-CL: [07] G06 F 15/167

US-CL-ISSUED: 709/207; 709/217, 709/218, 709/227, 705/26, 705/27
US-CL-CURRENT: 709/207; 705/26, 705/27, 709/217, 709/218, 709/227

FIELD-OF-SEARCH: 709/207, 709/217, 709/218, 709/219, 709/227, 709/234, 709/238, 709/240, 705/26, 705/27

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | | Search ALL |

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐ 3373517	March 1968	Halperin	
☐ 3376465	April 1968	Corpew	
☐ 3941926	March 1976	Slobodzian et al.	
☐ 4368485	January 1983	Midland	
☐ 4559480	December 1985	Nobs	
☐ 4734779	March 1988	Levis et al.	
☐ 4761641	August 1988	Schreiber	
☐ 4812843	March 1989	Champion, III et al.	
☐ 5214793	May 1993	Conway et al.	
☐ 5233423	August 1993	Jernigan et al.	
☐ 5257017	October 1993	Jones et al.	
☐ 5274762	December 1993	Paterson et al.	
☐ 5469020	November 1995	Herrick	
☐ 5486819	January 1996	Horie	
☐ 5543856	August 1996	Rosser et al.	
☐ 5612741	March 1997	Loban et al.	
☐ 5630067	May 1997	Kindell et al.	
☐ 5644859	July 1997	Hsu	
☐ 5724062	March 1998	Hunter	
☐ 5781734	July 1998	Ohno et al.	
☐ 5845083	December 1998	Hamadani et al.	
☐ 5848129	December 1998	Baker	
☐ 5898384	April 1999	Alt et al.	340/825.36
☐ 5934795	August 1999	Rykowski et al.	362/309
☐ 5992888	November 1999	North et al.	283/56
☐ 6073372	June 2000	Davis	40/124.16

OTHER PUBLICATIONS

Steven A. Morley, "Making Digital Cinema Actually Happen --What It Takes and Who's Going to Do It", Qualcomm Incorporated, Oct. 31, 1998.

ART-UNIT: 2132

PRIMARY-EXAMINER: Peeso; Thomas R.

ABSTRACT:

Commercial advertisers, such as consumer product companies and the advertising agents that represent them, directly access a network of thousands of large, high resolution electronic displays located in high traffic areas and directly send their own advertisements electronically to the network to be displayed at locations and times selected by the advertisers. In another application, operators of digital movie theaters have ongoing, continuous access to tens of thousands of movies that can be ordered in digital form for display on selected screens at their theaters at

selected times.

22 Claims, 4 Drawing figures

DOCUMENT-IDENTIFIER: US 5729214 A
TITLE: Condition reactive display medium

DATE FILED (1):
19960102

Abstract Text (1):
Digitally-effectuated, automatic control over the message or messages displayed on
one or more programmable display mediums in response to changing conditions, or
anticipated changing conditions, in the vicinity of the display mediums is
disclosed.

Brief Summary Text (3):
The field of the present invention generally relates a remotely controlled message
display system. More particularly it relates to a method and system for altering the
message on one or more signs or displays in response to ambient or anticipated
conditions in the vicinity of the sign.

Brief Summary Text (5):
Signs abound in our daily lives. Signs provide a means to identify, advertise,
command, warn, to inform, and to provide direction. Traditional signs, which have
been commonplace since the dawn of human civilization, consist of a board upon which
writing or illustration is placed. Billions of traditional signs are found on the
face of the earth today.

Brief Summary Text (8):
In the quest for a less labor intensive method of changing a lighted display's
message, there have been developed programmable displays capable of storing and
displaying one of several possible messages. U.S. Pat. No. 4,298,869 to Okuno
describes such a programmable display comprising a sign equipped with light-emitting
diode (LED) lamps for displaying information with respect to place-name, weather
condition and occurrence of accident and/or traffic jam. Besides permitting a number
of different messages to be displayed, LED-based programmable signs further provide
visibility of the message at night without the need for provision of an external
light. LED-based programmable signs have become fairly commonplace along many major
highways (e.g. coupled with a speed sensor to display to a driver his or her
excessive speed) and have even been proposed to replace traditional bill-boards.

Brief Summary Text (9):
The problem with LED-based signs is that they are generally bulky and costly to
operate. Further they often do not provide adequate contrast in bright light, that
is the sign's message is often "washed-out" by ambient light. As pointed out in the
prior art, the problem relating to bulkiness is adequately dispensed with by
equipping a programmable sign with a liquid crystal display. The problem with
conventional liquid crystal displays, however, is that the messages displayed
thereon are also often "washed-out" by ambient light and further suffer from angle
of view limitations. U.S. Pat. No. 5,331,448 to Kajiyama et al. discloses a liquid
crystal display that is said to overcome these problems and is said to permit the
manufacture of thin signs having excellent message visibility and durability and at
the same time providing for a large angle of view field. The liquid crystal device
is described as having a pair of electrodes at least one of which is transparent and
a mixture film of side-chain type liquid crystalline polymer and at least two low
molecular weight liquid crystals which film is sandwiched between the pair of
electrodes, wherein the mixture film contains 0.005 to 1% by weight of an
electrolyte based on a total weight of the mixture film. The device is said to

provide variable message capabilities conducive for use in variable traffic control signs.

Brief Summary Text (10):
The message to be displayed on a programmable display is typically chosen by input means intimately correlated with the display. However, remote control of programmable displays is known. For example, U.S. Pat. No. 5,309,174 to Minkus describes an electronic display system in which various messages are remotely provided to a display, and information regarding the display and/or message may be provided to the control location. U.S. Pat. No. 5,061,921 to Lesko describes a remote-controlled message sign having a plurality of display indicia mounted on a frame for movement between a plurality of positions, such sign frame being responsive to a pager signal.

Brief Summary Text (11):
The remote control display systems of the prior art suffer from several distinct problems. First, such systems are designed such that only one display responds to a given signal. Such systems make no provision for situations in which it is desirable to expeditiously change the message displayed on a plurality of displays all at once. Second such systems are designed such that manual input of data related to a particular message change is required. Such systems are not designed so as to permit automatic message response to a changed conditions. Finally, such remote systems typically involve connection to a remote station by transmission lines or telephone lines or are responsive to simple analog radio transmissions. Direct coupling to electrical lines is by its very nature quite expensive. Analog transmission to a multiplicity of programmable signs may be impractical given the need for licensing approval to operate in several magnetic spectrum bandwidths.

Brief Summary Text (13):
It is believed that wireless digital transmissions have heretofore not been applied to the remote control of programmable display mediums, such as signs and billboards. Such transmission method offers many advantages for such control systems, not only in the reduction of noise in the signal received by the display medium, by also in permitting improved re-programming of the messages to be displayed on a plurality of display mediums.

Brief Summary Text (15):
The disadvantages of the prior art are overcome in accordance with the present invention by providing wireless, digitally-effectuated, automatic control over the message or messages displayed on one or more programmable display mediums in response to changing conditions, or anticipated changing conditions, in the vicinity of the display mediums. Control over the identity of the display medium which (is)are to respond to a particular display command may be carried out by encodation of digital keys at one or more fixed bit positions in the transmission bit stream which are recognizable by the display medium processors of certain display mediums, but unrecognizable by other display medium processors, such digital keys unlocking the display medium processor so as to permit re-reprogramming of the message or messages to be displayed on the display medium in accordance with the display command portion of the signal.

Brief Summary Text (16):
In accordance with the invention, there is also provided one or more condition monitors for detecting ambient conditions in the vicinity of such monitors. Such condition monitors provide direct or indirect input to the display processor of a programmable display medium, such input by pre-programmed means being used to effectuate a change in the message or messages displayed on a particular display medium. Conditions which may be monitored are varied and include, for example, weather, traffic patterns, road conditions and degree of darkness. Various detecting devices known in the art may be coupled to a monitor processor including barometric pressure and humidity detectors (useful in monitoring weather conditions), acoustic sounding detectors (useful for adjudging the amount of traffic passing by a condition monitor), thermocouple-based detectors (useful for determining freezing on roads), and light-sensitive detectors (useful for adjudging the degree of darkness). While such condition monitor processor may be directly coupled to the display processor, or may be the display processor itself, and thus provide direct input with regard to changing conditions, it is preferred that such condition monitors be free standing and that the signal relating to changed conditions generated by the condition monitor be used to effectuate display message changes in a plurality of display mediums.

Brief Summary Text (17):
In one embodiment, the condition monitor transmits an analog, or preferably a digital, signal to a central station upon detecting a change in ambient conditions in the vicinity of the condition monitor. The central station processes the condition monitor signal, and in conjunction with any other signals received from other condition monitors in proximity to the condition monitor, calculates, preferably by pre-programmed means, whether the message displayed on one or more display mediums should be altered. The central station then transmits a command transmission signal directed at one or more display mediums to effectuate an alteration in the message displayed on the display mediums. Preferably such central station transmission is a digital transmission having numerous data blocks among which is an encoded key located at one or more fixed bit positions in the transmission bit stream which is recognizable by the display medium processors of certain display mediums, but unrecognizable by the display medium processors of other display mediums, such digital keys unlocking the display medium processor so as to permit broadcast or re-programming of the message or messages to be displayed on the display medium in accordance with the display command portion of the signal. Digital signal transmission and encoding may be performed by any means known in the art, for example as described in U.S. Pat. No. 5,444,490 to de With et al. with respect to transmission of television signals or as described in U.S. Pat. No. 5,381,143 to Shimoyoshi et al. generally. Preferably, the processor of the display medium whose display is altered is coupled to display sensors capable of detecting parameters related to the display such as pixels "on" or illumination of the system, and such processor is connected to a transmitter for transmitting information pertaining to the display parameters to the central station for confirmation that both the command has been transacted and that the display medium is in working order.

Brief Summary Text (19):
While the transmission link between condition monitor and central processing station, and central processing station and display medium(s), may encompass standard transmitter-receiver radio transmission technology, the transmission link may also encompass conventional cellular telephone technology. Such conventional technology is discussed in U.S. Pat. No. 5,440,613 to Fuentes. In such an embodiment, a transceiver connected to the condition monitor processor transmits a condition signal to a cell site via cellular telephone hook-up. By means well known in the art, the message is switched to a public switched telephone network and thereby transmitted to the central station. By hook-up through the cell site, the central station can communicate through the display medium transceiver with the display medium processor and alter the message or messages displayed thereon.

Brief Summary Text (20):
Communications may also be linked by satellite means. U.S. Pat. No. 5,433,726 to Horstein et al. describes a satellite-based telecommunications system requiring as little as nine satellites to provide complete global coverage of the earth and significantly reducing beam-to-beam and satellite-to-satellite handovers, thereby dramatically reducing the likelihood of dropouts. In this embodiment, transmissions, preferably digital in nature, are focused at a satellite that directs the transmission to the appropriate transceiver(s) in the system, for example a transmission from the condition monitor to the central processing station, from the central processing station to a display medium, and from a display medium to the central processing station.

Brief Summary Text (21):
The present invention also provides for anticipated changed condition input unrelated to the detection means of the condition monitors. In this aspect of the invention, input regarding such matters as construction work schedules (e.g. whether road crews are on the highway or not), anticipated detour schedules etc. are entered at the central processing station. Preferably by pre-programmed means, the central processing station processor is prompted to alter the message displayed on one or more display mediums with respect to the anticipated changed condition at the time of anticipated change.

Brief Summary Text (22):
Also disclosed is a display system comprising: a display medium means having a display for displaying messages; a condition monitor means for monitoring ambient conditions in the vicinity of said condition monitor and transmitting a condition signal with respect to changed ambient conditions; and a central processing means

disposed at a remote location from said display medium means and said condition monitor means having a transmission means for transmitting a control signal in response to said condition monitor means signal for initiating a message for display on said display.

Brief Summary Text (23):
Also disclosed is a display system comprising: a display medium means having a display for displaying messages; a central processing means disposed at a remote location form said display medium means having a transmission means for transmitting a control signal in response to pre-inputted data with respect to conditions anticipated to change over time to said display medium, such control signal controlling the message or messages displayed upon said display medium.

Brief Summary Text (24):
In one embodiment, the change message signal from the central processing station may activate a change in message on the display medium and/or a functionality intimated with a display medium or non-display medium. Such functionalities include a means to remotely move the display medium, such as a motor connected to a set of wheels by a mechanical linkage or a means for extending and retracting a protrusion from the medium such protrusion being used to block off a portion of a transit lane or other area from ingress or egress.

Drawing Description Text (8):
FIG. 7A and 7B are frontal and cross-sectional view, respectively, of an embodiment of a display medium of the present invention.

Detailed Description Text (3):
FIG. 1 is a pictorial illustration of an embodiment of the present invention in an inactivated state. In the embodiment of FIG. 1, condition monitors 14a, 14b, 14c, for monitoring ambient conditions, are placed along select locations on transit route 20, as for example, as depicted, a rural 16, suburban 17 and urban 18 locality. Condition monitors 14a, 14b, 14c may be used to measure changes in numerous conditions, such as weather as depicted in FIG. 1. Display mediums 19, 21, 22 and 23 are also placed along transit route 20 in a reasoned fashion. Display mediums 19, 21, 22 and 23 have a transceiver means (not shown) for receiving command signals from central processing station 9 with respect to the message (which may be words or illustrations) to be displayed on their displays and for transmitting display signals with respect to the current status of the display to central processing station 9 after transacting a change in display message. Central processing station 9 comprises a communication means, such as satellite dish 11 or radio tower is and a processing means 10 for processing data. Display mediums 19, 21, 22 and 23 are pre-programmed to display a particular message on their displays if they do not receive a contravening command signal otherwise. FIG. 1 depicts possible default messages that may appear on such display medium when weather conditions are within "normal" ranges.

Detailed Description Text (4):
FIG. 2 is a pictorial illustration of an embodiment of the present invention activated by poor weather conditions. As depicted in FIG. 2, condition monitor 14b is activated by rain conditions such as to send a changed condition signal to central processing station 9 by means of transmission from condition monitor antenna 15 to radio tower 13, or through satellite 12 and satellite dish 11. The changed condition monitor signal is processed by central processing station processing unit 10 and a command signal keyed to the appropriate display mediums is generated and transmitted. The display medium 19 to which the command signal 24 is keyed reacts in accordance with the command portion of the signal to alter its display. In FIG. 2, condition monitor 14a reacts to cloudy conditions, condition monitor 14b to rainy conditions, and 14c to stormy conditions and each transmits a signal with respect to such weather conditions to central processing station 9. Processing means 10 at central processing station 9 processes the information with respect to the weather conditions in each locality and by programming means transmits command signals with respect to one or more display medium. As depicted, display medium 19 displays a speed limit 5 miles-per-hour lower, display medium 22 a speed limit of 10 miles-per-hour lower, and display medium 23 a speed limit of 15 miles-per-hour lower, than the corresponding display medium in FIG. 1.

Detailed Description Text (5):
Now referring to FIG. 3, there is shown a pictorial illustration of an embodiment of the present invention activated by traffic conditions. As shown, condition monitors

14b and 14c react to traffic build-up and transmit signals with respect to such condition to central processing station 9. Central processing station 9 after processing such condition data, sends a signal to change the display on display mediums 21, 22 and 23, as shown.

Detailed Description Text (6):
Now referring to FIG. 4, there is shown a block diagram of a system according to the disclosed invention employing satellite transmission linkage. Condition monitor 14 comprises a condition monitor processor 49 having ROM 47 and RAM48 memory capacities, one or more ambient condition detectors 7, and a transceiver means 50 for sending signals, e.g. signal 36, 33 by satellite linkage, signal 51 by radio tower linkage, with respect to changed ambient conditions in the vicinity of condition monitor 14 to, and for receiving re-programming signals from, central processing station 9. Central processing station 9 includes a data processing means 24 for processing data with respect to changed conditions attendant to a condition monitor 14 received through transceiver 31, or anticipated changes input into data processing means 24 byway of input means 25. Data processing means 24 has both ROM memory 27 for storing programs, and RAM memory 28 for data manipulation work space. Data processing means 24 further has fixed memory storage storing commands which may include messages or graphical compositions or simple commands recognizable by a display processor of a display medium. Associated with data processing means 24 is a display screen 26 on which can be viewed both the changed condition data and the command to be sent to one or more display monitors. Data processing means 24 may be a general purpose digital computer. Connected to data processing means 24 is address generator 29 which is capable of accessing the command storage memory of data processing means 24 to cause the contents thereof to be read out of the memory, or cause data to be read into the memory. In practice, address generator 29 may be a part of data processing means 24, particularly in those cases where the data processing means is a general purpose digital computer. As data representing a command is read out of memory from the control location, it is passed to a radio-frequency modem 30 for transmission by radio waves as command signals 32 from transceiver 31 to satellite 34. The transmitted command signal 32 may be in digitalized form using methods well known in the art as described, for example, in the prior art disclosure hereof. Satellite 34 re-transmits the command signal 37 for pick-up by display medium 8 by means of display medium transceiver 39. Display medium transceiver 39 is coupled to display medium modem 40, which in turn is coupled to data recognition unit 41. Data recognition unit 41, which is typically processor-based, determines if a received transmission contains one or more key encryption codes which are in accordance with a key protocol programmed into the data recognition unit. In this respect, key encryptions in a command signal may be specific for a certain display medium or may be specific for a plurality of display mediums, or may be non-specific for all display mediums. Command data encompassed in the command signal is then sent by the data recognition unit to display medium processor 44. Display medium processor 44 has RAM memory 43, ROM memory 42 and preferably fixed memory (not shown). Display medium processor 44 processes either a command with respect to which message or messages stored in display medium fixed memory should be displayed, or stores a command in the form of a message or graphical composition in fixed memory for subsequent display that was encoded in the command signal. Display medium processor 44 further executes the command so as to display the requested message or graphical composition on display 45. Display medium may also comprise one or more display sensors 45 for sensing parameters related to the displayed message itself or for sensing parameters with respect to the function of the display medium processor and other electronic components of the display medium. Output from display sensors 45 may be connected by connection means 46 through modem 40 to display medium transceiver 39 for transmitting a signal with respect to the such sensed parameters such as satellite-linked signal 35, 33 or radio tower-linked signal 38 to central processing station 9.

Detailed Description Text (7):
FIG. 5 is a block diagram of a system, similar to that described with respect to FIG. 4, but employing cellular communication linkage rather than satellite-based communication linkage between the components of the system. In such a system, condition monitor 14 and display medium 8 are connected via telecommunication means 52 to cell site 53. As is conventional in cellular communications, cell site 53 is linked to a central office 54 which is interconnected to public switched telephone network 55. Central processing station 9 is linked 56, 57 through public switched telephone network and therefore to display medium 8 and condition monitor 14. In such a system, data processor 24 is pre-programmed with the telephone number of a multiplicity of display mediums 8 and contacts display medium 8 by dialing the phone

numbers associated with particular signs and transmitting the command signal thereto.

Detailed Description Text (9):
The process undertaken by data processing means 24 is set forth at 59. Data processing means 24 determines whether the signal received relates to a changed condition, that is from condition monitor 49 or to a display medium status check by sensors 45 of display mediums 8. If the signal relates to a change of road or traffic condition, data processing means 24 determines which signs are in the vicinity of the monitor registering a change and by pre-programmed means determines the appropriate sign response to the changed condition. The command signal is then transmitted with a sign identifier, or key code, such that only particular messages on particular signs are altered according to a pre-prepared plan. If data processing means 24 determines that the signal relates to a display medium status check, data processing means 24 compares the status data against the desired status of the sign, and if such do not match, sends an error signal.

Detailed Description Text (10):
The process undertaken by display medium 8 is set forth at 59. Display medium 8 gauges whether a particular command signal received is coded for response by display medium 8. If the command signal is appropriately coded for action by display medium processor 44, then display processor 44 transacts the command portion of the command signal. Display sensors 45 upon prompting by display processor 44 sense parameters related to the display and/or operation of the display medium electronics and transmit data relating to the same to data processing means 24 at data processing station 9.

Detailed Description Text (11):
FIG. 7A and 7B are frontal and cross-sectional views, respectively, of an embodiment of a display medium of the present invention having a processor-activated means for activating a functionality in addition to, or other than, message display associated with the display medium. As depicted, in FIGS. 7A-7B, the command signal from the central processing station received from antenna 70 may activate a device such as pneumatic pump 71 which may be used to inflate or deflate a retractable protrusion means 74 having, for example, an end portion 72 for providing direction and body portion 63 housed in a protrusion housing 73. Retractable protrusion means 74 may be coupled to multiple protrusion support means 66, such means being coupled to the protrusion means by rotatable means 68 on one end and having a ground traversing means, such as wheel 67, on the other end, such as to support retractable protrusion means 74 on transit lane 20 when the protrusion is in dynamic and static extended state (FIG. 7A) and to permit easy storage of the protrusion support means 66 when the protrusion is in the retracted state (FIG. 7B). Display medium 61 may display a message 62 in accordance with the command signal as well as effectuating a change in the extension or retraction of retractable protrusion means 74. Display medium 61 may have wheels 69 or other ground traversing means to aid in the movement of display medium 61 and may have a support stand 65 to aid in substructural support. An incline means 64 may also be attached to elevated display medium 61 to permit easier disengagement and storage of protrusion support means 66. Other functionalities which may be activated by the command signal including a means to remotely move the display medium, such as a motor connected to a set of wheels by a mechanical linkage.

CLAIMS:

1. A display system comprising:

a plurality of display mediums; said display mediums having a display transceiver means for receiving aerially-transmitted digitized signal bit streams and for transmitting aerial signals, display medium memory storage means for storing digital data, a display medium processor means electronically coupled with said transceiver means and said display medium memory storage means, said display medium processor means under control of a display medium data program routine stored in said display medium memory storage means for processing and storing data encoded in said digitized signal bit stream, a display means electronically coupled to said display medium processor means capable of visually displaying a non-preset number of images in response to said aerially-transmitted digitized signal bit stream, and a data recognition means electronically coupled to said display processor means for determining if a received transmission contains one or more data keys which are in accordance with a key protocol stored in said display memory storage means and

permitting input of data encoded in said digitized signal bit stream into said display processor means only upon verification that such one or more data keys is in accord with said key protocol;

a plurality of condition monitor means for monitoring conditions in the vicinity of said condition monitor means and transmitting an aerial signal with respect to said conditions, said condition monitor means having a transceiver means for transmitting and receiving aerial signals, and a detection means electronically coupled to said transceiver means for detecting ambient conditions;

a central processing means disposed at a remote location from said plurality of mediums having a central processing transceiver means for aerially-transmitting a digitized signal bit stream to, and receiving aerial signals from, said condition monitor means, a central processing memory storage means for storing digital data, a central processing means co-processing means electronically coupled to said transceiver means and said central processing memory storage means, said central processing means co-processing means under control of a central processing data program routine stored in said central processing memory storage means for co-processing said aerial signals from said condition monitor means and effectuating transmission of said digitized signal bit stream in accordance with said central processing data program routine to said display mediums;

wherein one or more portions of said digital signal bit stream correspond to a command instruction data set interpretable by said display processor means and a data key data set interpretable by said data recognition means, said data key data set portion for unlocking said one or more display medium processor means responsive to said data key data set portion so as to permit reprogramming of said display medium data program routine or broadcast of a message or messages encoded in said digital signal bit stream signal in accordance with said command instruction data set portion of said digitized signal bit stream signal onto said display means of said unlocked display mediums and wherein said data key data set and command instruction data set of said digitized signal bit stream generated by said central processing means is generated in accordance with said central processing data program routine using data transmitted aerially to said central processing means from said plurality of condition monitor means.

2. The display system of claim 1 further comprising a plurality of spacially-positioned satellites for receiving said digitized data signals from said central processing means and transmitting the same back to said display mediums.

3. The display system of claim 1 wherein the condition monitor aerial signal is digital in nature.

4. The display system of claim 1 wherein said display medium processor means is programmed to periodically check the status of said display and to aerially transmit such status in signal form to said central processing means.

5. The display system of claim 4 wherein said central processing means is programmed to compare said actual status of said display against the desired status of said display and to generate an digitized signal bit stream in order to effectuate a change in said display so as to bring the actual status of said display into conformity with said desired status of said display.

6. A traffic control system for blocking off a portion of one or more transit areas from ingress or egress comprising:

a plurality of medium each having a retraction means for retracting, and an extension means for extending, a barrier means of sufficient size to block off ingress or egress with respect to said transit area, a transceiver means for receiving and transmitting aerial signals, and a processor means electronically coupled with said transceiver means and said retraction means for processing said aerial signals and effectuating movement of said barrier means by means of said retraction or extension means; said medium processor means having memory storage means and processing means for storing and processing data encoded in said aerial signals, and a data recognition means electronically coupled to said processor means for determining if a received transmission contains one or more data keys which are in accordance with a key protocol stored in said memory storage means and permitting input of data encoded in said aerial signal into said display processor means only upon verification that such key is in accord with said key protocol;

a central processing means disposed at a remote location from said plurality of mediums having a central processing transceiver means for transmitting a control signal for receipt by one or more said medium transceiver means, said control signal controlling said medium processor means for initiating extension or retraction of said barrier means from one or more of said mediums.

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L7: Entry 1 of 1   File: USPT   Feb 22, 2000

DOCUMENT-IDENTIFIER: US 6029141 A
TITLE: Internet-based customer referral system

US PATENT NO. (1):
6029141

Brief Summary Text (8):
Another problem commonly faced by online merchants is an inability to efficiently
attract potential consumers to their Web sites. One way of attracting consumers has
been to market the site through television, newspaper and Internet advertisements.
However, advertising a site using conventional methods can be expensive, and can
consume significant human resources. In addition, it is often difficult or
impossible to evaluate the effectiveness of a given advertisement.

Brief Summary Text (12):
In accordance with one aspect of the invention, the associate catalog documents
include product-specific hyperlinks, referred to herein as "referral links," that
allow potential customers to link to the merchant's Web site to initiate purchases
of such products from the merchant. Each referral link is provided within the
catalog document in association with referral information that is transmitted to the
merchant's site when a user (customer) clicks on the referral link. This referral
information preferably includes the unique ID of the associate (assigned upon
enrollment) and the unique ID of the selected product. Referral processing software
running on the merchant site uses this information to identify the associate that
referred the customer to the merchant site, and to identify the product selected
from the associate's catalog. If the customer subsequently purchases the selected
product from the merchant site (e.g., by filling out an order form page and
submitting the order), the referral processing software automatically credits the
referring associate for the referral by, for example, applying a commission to an
account of the associate. In one implementation, the referral commission is
automatically generated based on a fixed percentage of the merchant's selling price,
and is paid to the associate electronically on a periodic basis (such as every
calendar quarter).

Brief Summary Text (15):
In a preferred embodiment, the merchant site includes code that maintains a unified
shopping cart data structure ("shopping cart") for each ongoing customer shopping
session. For each ongoing shopping session, the shopping cart maintains a record of
at least: (i) the products that are currently selected by the customer for
prospective purchase, and (ii) the referral source (if any) of each such product. In
one implementation, each shopping cart persists on the merchant site for an extended
period of time (such as one week) following the most recent access by the customer,
thereby allowing the customer to conduct extended shopping sessions. To purchase the
products represented within the shopping cart, the customer proceeds to a "check
out" area of the merchant site and submits an order. Software running on the
merchant site then uses the information collected within the shopping cart to
identify, and appropriately credit the account of, each associate that provided a
corresponding referral.

Detailed Description Text (29):
As described below, because the merchant handles the tasks of processing online
orders, shipping products, collecting payment, and providing customer service, the
associate need not be concerned with these tasks. Thus, the associate can
effectively become an online retailer immediately, by simply enrolling as an

1 of 4

1/31/03 11:24

associate and setting up a Web site.

Detailed Description Text (37):

The shopping cart is a customer-specific data structure that is generated and maintained (within a shopping cart database 152) by executable code of the merchant site 106. The database may be any type of data repository including, for example, an SQL table or ASCII text file. The information stored within the shopping cart includes a list of the products that have been selected by the customer for prospective purchase, together with an identifier of the referring associate (if any) corresponding to each such product. In one implementation, each shopping cart persists on the site 106 for an extended period of time (such as one week) following the most recent access by the customer, allowing the customer to conduct extended shopping sessions. When the customer proceeds to a check-out area of the merchant site 106 and submits an order for the selected products, the associate identifiers stored within the customer's shopping cart are used to appropriately credit the accounts of the referring associates. Although the shopping cart implementation provides an efficient mechanism for tracking and crediting referral events, referrals can alternatively be credited without the use of a shopping cart, such as by crediting the associate at the time of, or during the same shopping session as, the referral.

Detailed Description Text (39):

Although the embodiment described herein uses Web technology to disseminate the catalog documents, any of a variety of document types and electronic dissemination technologies can be used. For example, the associate's catalog documents may be in the form of hypertextual e-mail messages that are disseminated by a list server, or PUSH documents disseminated by a PUSH server. As interactive television, video-on-demand, and Web TV technologies continue to evolve, it is contemplated that the "catalog documents" will include video advertisements that are displayed to the customer on a television screen. Further, although hypertextual catalog documents are preferably used, it is possible for an associate to use non-hypertextual catalogs (including paper-based product catalogs) that simply instruct the customer to manually enter the appropriate URL (including the referral information) into a browser program.

Detailed Description Text (59):

FIG. 6 illustrates an example HTML catalog document (Web page) 120 in accordance with the present invention. The customer views the product catalog document 120 via the Web browser 112 in order to select a particular product (book) offered through the associate's Web site 100. In this example, the catalog document 120 comprises a graphic icon 600 that is a scaled-down replica of an actual book cover. The graphic icon 600 also functions as a hyperlink, allowing the customer to click on the icon with a mouse in order to link to the merchant Web site 106. The document 120 includes the title 602 and author of the book 604, and includes an editorial description and recommendation of the book 606 from the associate. The catalog document 120 also contains another textual hyperlink 608, allowing the customer to link to the merchant Web site 106 and initiate referral transaction processing. Typically, the associate's product catalog (which may include multiple catalog pages) contains several referral links (with different product IDs), each corresponding to a different product sold by the merchant.

Detailed Description Text (61):

Further referring to FIG. 5, upon clicking or otherwise selecting the referral link 608 of the associate's catalog document 120 (event C), the Web browser 112 communicates with the merchant Web server 132 (events D-F) to access HTML documents 136 of the merchant Web site 106. Initially, the customer is shown a product detail page that provides detailed information about the selected product, and allows the customer to add the selected product to the shopping cart (described below). The Web server 132 also serves Web pages (including dynamically-generated pages) that display and allow the customer to edit the contents of the shopping cart, and that allow the customer to proceed to a check-out area to order the selected products.

Detailed Description Text (83):

As will be appreciated from the foregoing, the shopping cart feature of the system enables the customer to view the entire shopping experience as a seamless, automated shopping session. The seamless nature of the session allows the customer to shop for products based on the marketing expertise of the associates, while conveniently utilizing the merchant's order fulfillment resources.

Detailed Description Text (86):
One report produced by the AMAZON.COM site is the "Weekly Activity Report." An
example of such a report is included as Appendix B. This report provides information
about the number of books ordered through the associate's referral links, the number
of selections (hits) of each referral link, and the amount of referral credit earned
on orders in the time period.

Detailed Description Paragraph Table (1):
APPENDIX A _____ Date: Tue, 24 Jun 1997 02:11:28
-0700 (PDT) To: mystore@aol.com Subject: Amazon.com Books: Thank you for your
application Cc: associates@amazon.com Thanks for submitting your application to
participate in the Amazon.com Associates Program. Your application has been
temporarily approved. We'll contact you by e-mail once we have reviewed and approved
your application. *Important*: Be sure to save this email message--you will need
some of the information here to properly set up your links to Amazon.com. You can
set up your Web site now. You have been assigned a unique Associates ID. You'll use
this ID when linking your sponsoring Web site into our catalog; detailed
instructions are included at the end of this message. Your unique Associates ID is:
mystore. USING THE AMAZON.COM/ BRAND NAME As you may already know, Amazon.com has
received a great deal of very positive press coverage since we opened. From The Wall
Street Journal, Newsweek and the Associated Press to PC Magazine and WebWeek,
mainstream and industry press alike have helped to make the Amazon.com brand name
one of the more well-known among Internet sites. Our extensive advertising campaign
reaches users of many major Web services and search tools, and our printed ads are
found in places like the New York Times Review of Books. You should consider using
not only our name but one of the logos or banners found on our site at:
http://www.amazon.com/exec/obidos/subst/assoc-art.html so that your visitors have
the chance to recognize our name as a familiar and trustworthy Internet retailer
working in association with you. SUGGESTIONS FOR SUCCESSFUL PRESENTATION: We've put
a page on our Web site filled with suggestions for building a great online
bookstore. These tips are taken from our most successful Associates, and we highly
recommend reading them. Follow the link on our home page to "Build Your Own
Bookstore", and from there link to "Build a Great Bookstore". You can also connect
directly at this URL:
http://www.amazon.com/exec/obidos/subst/assoc-success-tips.html HOW TO LINK INTO OUR
CATALOG: You can use any sort of book descriptions, review material and graphics
that you like when describing books on your Web site. All we need is a separate link
into our catalog for each book you wish to recommend. You may add or remove these
links at any time without our prior approval; as long as they follow the prescribed
format we'll detect them automatically when they are used. Each link to our catalog
will be the same except for the ISBN of the book. You'll see the "isbn=" part of the
link at the end of each example below. To find the ISBN of the book you wish to
list, use our Web site and search for that book with any of our search tools. The
ISBN for each edition (hardcover, paperback, book on tape) is displayed on the
detail page for that book. Remember--you may change which books you list whenever
you like. You won't need our permission and it's not even necessary to advise us of
the changes--they'll be automatically detected and commissioned properly. EXAMPLE:
For each book you recommend, link it to us like this:
http://www.amazon.com/exec/obidos/ISBN=1234567890/mystoreA/ Note: You *must* use a
capital A at the end of this link, not a lower-case a. Of course, the ISBN will
change for each book. Do not include any spaces or dashes in the ISBN when making
these links. Also, make sure to check our catalog first--we can only sell what's
listed there. VERY IMPORTANT: If you copy the URL of a book page from our Web site
and modify it to fit the format above, be sure to remove the 19-character shopping
cart ID that appears at the end of the bookmarked or copied URL. Your store code
should immediately follow the ISBN as in the example above. If you leave this in
your modified links, they will not work properly. The information we have about your
Web site is as follows: Contact e-mail Address: mystore@aol.com Contact address:
John Doe 1234 East Road Anytown WA 12345 Payee e-mail address: mystore@aol.com Payee
address: Doe Enterprises, Inc. 1234 East Road Anytown WA 12345 Description of books
you intend to list: Business Books - How to Business Books Sponsoring Web site name:
Sponsoring Web site URL: Your Web site name, in the format we may use on our
website: Mystore - Anytown, WA in association with Amazon.com Books If you have any
questions, you can e-mail us at associates@amazon.com and we'll be happy to help.
Once again, thanks for your application. Sincerely, Associates staff Amazon.com
Books http://www.amazon.com/ 2.5 million titles, consistently low prices

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Detailed Description Paragraph Table (2):

Weekly Activity Reports Every week, we e-mail our Associates a detailed activity report so that they can track the effectiveness of their efforts. A sample of the report shows what you can expect to receive weekly: Sample Weekly Activity Report Last Week's Sales Results Note: This report includes a column labeled "ORDERED," which is the weekly number of copies for which orders have been placed through your special links. Only after these orders are paid for and shipped will they actually count toward your referral fee. Some of these orders may later be canceled, customers' credit cards may be declined, and occasional returns should be expected; in any of these cases, the referral fee will not be earned. The column labeled "HITS" represents the number of times one of your visitors clicked on a book (this column can help you gauge your visitors' interest in the books you are selling). The column labeled "REFERRAL FEE" represent the referral fees your site has earned on orders. Please remember that we pay you based on orders *shipped*, so your actual Referral Fee may be somewhat lower than the fee stated here. Look for special notices in the titles listed below. They can help you track books that may not pay referral fees and identify certain problems with the link format you may be using **1** indicates that this item is currently being featured at a discount of more than 30%. **2** indicates that this item is "special order" or carries no discount Other notes may indicate problems with a link format or items no longer carried in our catalog. Quarter-to-Date Books Ordered: 105 Quarter-to-Date Qualified Book Revenue: 4266.46 Quarter-to-Date Referral Fees: 519.04 Click-throughs and sales by individual book for the week of 12-Jan-97 through 18-Jan-97 Store ID mystore ISBN HITS ORDERED YOUR FEE TITLE 0534517072 4/2 1.70 **2** Earth Online: An Internet Guide 2 sold at 0% off list price of 16.95 0672309599 3 0 0.00 Microsoft SQL Server 6.5 Dba Survival G 0764530038 2 0 0.00 Danny Goodman's JavaScript Handbook 0789704927 355 11 65.99 Building Delphi 2 Database Applications 11 sold at 20% off list price of 49.99 0789704943 2 0 0.00 Using VRML 0789707500 1 0 0.00 Delphi 2 Tutor: The Interactive Seminar 1568302894 110 6 8.10 **1** Creating Killer Web Sites: The A sold at 40% off the list price of 45.00 Totals: 477 19 75.79

_____ Number of Visitors on 19-Jan-97 68 Number of Visitors on 20-Jan-97 65 Number of Visitors on 21-Jan-97 54 Number of Visitors on 22-Jan-97 59 Number of Visitors on 23-Jan-97 50 Number of Visitors on 24-Jan-97 47 Number of Visitors on 25-Jan-97 32 Total Visitors this week 375

_____ NOTE: A "Visitor" is a person who click on book links from your site, and is counted as 1 visitor (above) regardless of the number of different titles they click on. We keep track of this by watching their shopping cart ID, which remains the same for every book they click on. A "Hit" is any person clicking on a book link, and each click is counted as 1 hit. If the same visitor click on 5 different titles, we record 1 visitor and 5 hits. Therefore, you should expect the number of visitors t be lower than the total number of hits.

WEST

Generate Collection   Print

Search Results - Record(s) 1 through 4 of 4 returned.

1. Document ID: US 6311214 B1

L8: Entry 1 of 4   File: USPT   Oct 30, 2001

US-PAT-NO: 6311214
DOCUMENT-IDENTIFIER: US 6311214 B1

TITLE: Linking of computers based on optical sensing of digital data

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
Draw Desc | Image

2. Document ID: US 6131085 A

L8: Entry 2 of 4   File: USPT   Oct 10, 2000

US-PAT-NO: 6131085
DOCUMENT-IDENTIFIER: US 6131085 A

TITLE: Answer collection and retrieval system governed by a pay-off meter

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

3. Document ID: US 6091956 A

L8: Entry 3 of 4   File: USPT   Jul 18, 2000

US-PAT-NO: 6091956
DOCUMENT-IDENTIFIER: US 6091956 A

TITLE: Situation information system

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

4. Document ID: US 5907793 A

L8: Entry 4 of 4   File: USPT   May 25, 1999

US-PAT-NO: 5907793
DOCUMENT-IDENTIFIER: US 5907793 A

TITLE: Telephone-based interactive broadcast or cable radio or television methods

and apparatus

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments		KWIC
Draw Desc	Image										

Generate Collection	Print

Terms	Documents
L7 and (merchant or seller)	4

Display Format: TI | Change Format

Previous Page   Next Page

L3: Entry 6 of 7   File: USPT   Jul 21, 1992

US-PAT-NO: 5133081
DOCUMENT-IDENTIFIER: US 5133081 A

TITLE: Remotely controllable message broadcast system including central programming station, remote message transmitters and repeaters

DATE-ISSUED: July 21, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Scott T.	Raleigh	NC	27609	

APPL-NO: 07/ 431537   [PALM]
DATE FILED: November 3, 1989

INT-CL: [05] H04B 7/14, G08G 1/09, H04H 9/00

US-CL-ISSUED: 455/18; 455/66, 340/905, 369/7, 381/2
US-CL-CURRENT: 455/18; 340/905, 369/7, 381/2, 455/66

FIELD-OF-SEARCH: 455/3, 455/4, 455/17, 455/13, 455/16, 455/51, 455/66, 455/68, 455/70, 455/156, 455/158, 455/18, 455/7, 455/9, 455/11, 381/77, 381/82, 381/2, 381/3, 340/905, 340/994, 369/6, 369/7

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | | Search ALL |

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4041389	August 1977	Oades	455/17
☐	4350970	September 1982	von Tomkewitsch	340/905
☐	4445147	April 1984	Kessman et al.	
☐	4481671	November 1984	Matzold et al.	
☐	4578815	March 1986	Persinotti	
☐	4636880	January 1987	Debell	
☐	4703368	October 1987	Dakin	
☐	4742530	May 1988	Kawai	
☐	4772873	September 1988	Duncan	
☐	4792246	December 1988	Mayo	
☐	4887308	December 1989	Dutton	455/158

FOREIGN PATENT DOCUMENTS

ABSTRACT:

A remotely controllable message broadcast system includes a Central Programming
Station, and many Remote Message Transmitters and repeaters. The Central Programming
Station includes a library of broadcast messages and a set of Remote Message
Transmitter programming instructions. A transmitter in the Central Programming
Station transmits selected broadcast messages from the library and selected Remote
Message Transmitter programming instructions from the set to all the Remote Message
Transmitters over a wide area transmission network such as a licensed radio link.
The transmitted instructions may include global instructions which apply to all
Remote Message Transmitters and unique (addressable) programming commands which
apply to an individual one of the Remote Message Transmitters. Each Remote Message
Transmitter selectively stores received broadcast messages and programming
instructions based on whether it is a global instruction or a unique addressable
command for that particular Remote Message Transmitter. Each Remote Message
Transmitter also includes a local transmitter for locally transmitting sequences of
the stored broadcast messages under control of the stored programming instructions.
Message sequences may be transmitted as an unlicensed or licensed radio
transmission, or may be displayed on an electronic billboard. The Remote Message
Transmitters may also transmit the message sequences to one or more repeaters so
that each unique message sequence may be directed along particular areas of
coverage. Accordingly, a single Central Programming Station may program large
numbers of Remote Message Transmitters so that unique message sequences may be
broadcast in specific areas of coverage.

215 Claims, 16 Drawing figures

L3: Entry 6 of 7   File: USPT   Jul 21, 1992

DOCUMENT-IDENTIFIER: US 5133081 A
TITLE: Remotely controllable message broadcast system including central programming station, remote message transmitters and repeaters

DATE FILED (1):
19891103

Abstract Text (1):
A remotely controllable message broadcast system includes a Central Programming Station, and many Remote Message Transmitters and repeaters. The Central Programming Station includes a library of broadcast messages and a set of Remote Message Transmitter programming instructions. A transmitter in the Central Programming Station transmits selected broadcast messages from the library and selected Remote Message Transmitter programming instructions from the set to all the Remote Message Transmitters over a wide area transmission network such as a licensed radio link. The transmitted instructions may include global instructions which apply to all Remote Message Transmitters and unique (addressable) programming commands which apply to an individual one of the Remote Message Transmitters. Each Remote Message Transmitter selectively stores received broadcast messages and programming instructions based on whether it is a global instruction or a unique addressable command for that particular Remote Message Transmitter. Each Remote Message Transmitter also includes a local transmitter for locally transmitting sequences of the stored broadcast messages under control of the stored programming instructions. Message sequences may be transmitted as an unlicensed or licensed radio transmission, or may be displayed on an electronic billboard. The Remote Message Transmitters may also transmit the message sequences to one or more repeaters so that each unique message sequence may be directed along particular areas of coverage. Accordingly, a single Central Programming Station may program large numbers of Remote Message Transmitters so that unique message sequences may be broadcast in specific areas of coverage.

Brief Summary Text (4):
Message broadcast systems such as radio networks are well known. Message broadcast systems may be employed to convey information along a highway for radio reception in vehicles traveling therealong or for reception by series of electronic billboards therealong for viewing by travellers in vehicles. Message broadcast systems may also be employed in localized coverage areas such as an amusement park or other tourist attraction, to broadcast messages for reception in vehicles or for announcement over public address systems.

Brief Summary Text (25):
The Remote Message Transmitters and repeaters of the present invention may transmit analog messages over unlicensed FM or microwave transmission channels for reception at radios in vehicles traveling in the area of coverage. Alternatively, the messages may be transmitted over loudspeakers to provide a public address system in a tourist attraction or other site, in which the messages broadcast at each system may be varied and updated at will. Alternatively, the messages transmitted may be digital messages for receipt by a receiver, for example, in traveling vehicles which are equipped with a cathode ray tube or other display means for displaying the received messages. In this case, the vehicle may also include a controller and a keyboard for selecting a desired type of message to be received. An audible alarm may be sounded when the desired type of message is received. In yet another embodiment, the digital messages may be transmitted on billboards located, for example, along a highway, to provide continuous and updated graphical and alphanumeric messages along the highway, and thereby provide a remotely programmable billboard system.

Drawing Description Text (12):
FIG. 11 is a block diagram illustration of a Remote Message Transmitter and an electronic display according to the present invention.

Detailed Description Text (17):
The liquid crystal display (LCD) 506 indicates the operating mode at all times. After receiving an alarm transmission from an RMT, the RMT ID code is displayed with the alarm condition. When programming an RMT, the display is used to display a message title and memory slot ID code. The ID code is used by the digital recorder in the RMT to identify a particular message (memory location). The message title is a one to sixteen character alpha-numeric title to aid the programmer in identifying a particular message. The slot ID code and title are stored in memory at the RMT so that the CPS can request a listing of all stored messages and their status at any time without having to monitor the actual broadcast to identify messages.

Detailed Description Text (24):
Referring now to FIG. 7, a block diagram illustrating the communications links and control circuitry in an RMT or CPS, according to the invention, is shown. The controller illustrated in FIG. 7 contains all of the necessary functions except the solid state digital recorder of FIG. 6. Firmware in EPROM 703 allows microcontroller 701 to coordinate the functions of a digital recorder system (FIG. 6) attached through serial link 720, and various other input and output devices. Address decoder and chip selection logic is provided by block 705. Commands and data can be entered at keypad 710. The microcontroller 701 interprets the commands and performs functions as determined by the firmware in EPROM 703. Operating modes and data entries can be displayed on a liquid crystal alpha-numeric display 706. The RMT may be located at a remote area where AC power is not available. Accordingly, power supply 707 is designed to include a battery 708. A solar battery may also be included. An AC input may also be provided.

Detailed Description Text (28):
This embodiment may typically be used in automatic programming systems for commercial radio stations, where a highly reliable means must be available for storing and retrieving audio information such as music, news, advertisements, and other messages. The recorders may be programmed remotely, as from an editing studio, or from another station via a satellite link. A controller interfaces between the bank of recorders and a remote link to the programming station. The controller contains a microprocessor programmed to insure the proper operation of the system. The timing and control signals are monitored to detect a faulty recorder and to allow for automatic transfer to a working recorder.

Detailed Description Text (30):
Microcontroller 701 of FIG. 7 communicates with microcontroller 601 of FIG. 6 via serial link 720. First, microcontroller 701 determines the available memory in the digital recorder by instructing microcontroller 601 to write data into RAM 606 and then reading it back. Microcontroller 701 then calculates the recording time available and displays it on display 706. The programmer can then enter various parameters defining the types and lengths of messages. After the memory slots have been defined, they are regarded as empty until program data is stored in them. The starting and ending addresses are stored in battery backed RAM 704.

Detailed Description Text (32):
A programmer at the CPS may want to identify all active messages at a particular RMT. The CPS transmits a command to list all active commands (the ones being broadcast). For each active message, display 706 indicates the 2 byte ID code. If the programmer wants further identification, the RMT can transmit the 16 character message label. If the programmer still cannot identify the particular message, a message playback can be requested from the RMT. The long range link can play back the message in question in part or whole depending on the command. One command only plays back the first ten seconds of the message, while another command causes the complete message to be played. All of this can be accomplished without interrupting the broadcasting of messages at the RMT. When a particular slot is selected to be edited or reprogrammed, if it is currently an active message, it can remain current until the changes have been entered and acknowledged.

Detailed Description Text (40):
The CPS has an internal digital recorder identical to the RMT digital recorders. It has at least as much memory as the remotes for storing and editing any length

message to be installed in the RMTs. Since the memory chips are fairly expensive, it is important not to waste the memory with dead space (gaps in the audio). A pause of various lengths can be inserted by controller 701 between messages. The CPS can edit the audio messages before transmission to remove pauses before and after the message to maximize the message content before storage. It also displays the size of the slot to be programmed as well as the real time of the message being edited for transmission. If the message being entered is too long for the slot, an error message is displayed. If the message is shorter than the slot, the slot is not completely filled, but there is no gap when the message is played. Any slot can be programmed with messages shorter than the slot time.

Detailed Description Text (41):
When the audio message is ready for transmission, the CPS transmits a programming command to the desired RMT. The RMT responds with a list of its programming index. This is a list of the number of slots with their characteristics. If the slots have messages already, the ID codes of the messages are displayed after the slot number and length of the slot in seconds. The status of the slot is displayed as well. The slot may already be programmed, but the message may not be played or broadcast. It may be a message that only plays at certain times of day depending on the output of the real time clock 704. If the slot is currently one of the messages being played, it is considered to be active. If it is programmed but not being played, it is inactive. If the slot is not programmed, it is empty and does not have a message ID code. Display 706 indicates the slot is empty and ready to be programmed.

Detailed Description Text (65):
The motorist selects the category of desired information using keypad 1009, which is part of the receiver system 1005 installed in the vehicle. Controller 1010 monitors all data decoded by decoder 1008. If the data being received is the type that is selected, beeper 1012 alerts the driver that the information can be displayed on display 1011. Controller 1010 contains memory to store all transmissions that may be selectively displayed. Also, as new information is received over receiver 1007, old information can be automatically updated.

Detailed Description Text (66):
FIG. 11 indicates how an RMT 1101 may be used to program an electronic display 1104. Modem output 1102 can transmit FSK encoded data to display decoder 1103. The decoder may contain a microprocessor based circuit and display driver circuitry that enables it to activate or deactivate individual lights or liquid crystal elements arranged in an X-Y grid pattern. Text and graphics may be displayed so that messages or advertisements may be viewed at great distances. This is an example of a remotely programmable sign or billboard. Messages and pictures may be changed instantaneously to allow multiple advertisements to be placed on a single billboard. The RMT 1101 allows a CPS to program multiple signs over a radio or telephone link. The RMT would also enable the CPS to monitor the status of a remote display.

CLAIMS:

19. The remotely controllable message broadcast system of claim 1 wherein the means for locally transmitting comprises an electronic billboard for displaying messages thereon.

22. The remotely controllable message broadcast system of claim 1 wherein said means for locally retransmitting comprises an electronic billboard for displaying messages thereon.

37. The remotely controllable message broadcast system of claim 1 wherein said library of broadcast messages comprise digital information messages, said remotely controllable message broadcast system further comprising a plurality of digital message receivers, each comprising:

means for receiving the locally retransmitted at least one of the subset of the selected broadcast messages from an associated repeater; and

means for displaying the received locally retransmitted at least one of the subset of the selected broadcast messages.

38. The remotely controllable message broadcast system of claim 37 wherein each of said plurality of digital message receivers further comprises:

means, responsive to said means for receiving the locally retransmitted at least one of the subset of the selected broadcast messages, for selecting a predetermined locally retransmitted at least one of the subset of the selected broadcast messages for display on said displaying means.

80. The remotely controllable message broadcast system of claim 62 wherein the means for locally transmitting comprises an electronic billboard for displaying messages thereon.

93. The remotely controllable message broadcast system of claim 72 wherein said library of broadcast messages comprise digital information messages, and remotely controllable message broadcast system further comprising a plurality of digital message receivers, each comprising:

means for receiving the locally transmitted at least one of the subset of the selected broadcast messages from an associated remote message transmitter; and

means for displaying the received locally retransmitted at least one of the subset of the selected broadcast messages.

94. The remotely controllable message broadcast system of claim 93 wherein each of said plurality of digital message receivers further comprises:

means, responsive to said means for receiving the locally transmitted at least one of the subset of the selected broadcast messages, for selecting a predetermined locally retransmitted at least one of the subset of the selected broadcast messages for display on said displaying means.

123. The message broadcast system of claim 115 wherein said means for locally transmitting comprises an electronic billboard for displaying messages thereon.

126. The message broadcast system of claim 115 wherein said means for locally retransmitting comprises an electronic billboard for displaying messages thereon.

136. The message broadcast system of claim 117 wherein said library of broadcast messages comprise digital information messages, said message broadcast system further comprising a plurality of digital message receivers, each comprising:

means for receiving the locally transmitted broadcast messages from an associated remote message transmitter; and

means for displaying the received locally retransmitted broadcast messages.

137. The message broadcast system of claim 136 wherein each of said plurality of digital message receivers further comprises:

means, responsive to said means for receiving the locally transmitted at least one of the subset of the selected broadcast messages, for selecting a predetermined locally transmitted broadcast message for display on said displaying means.

183. The remote message transmitter of claim 175 wherein the means for locally transmitting comprises an electronic billboard for displaying messages thereon.

194. The remote message transmitter of claim 177 wherein said broadcast messages comprise digital information messages, said means for receiving comprising digital message receiving means, said remote message transmitter further comprising:

means for displaying the received digital message.

195. The remote message transmitter of claim 194 wherein said digital message receiving means further comprises:

means for selecting a predetermined digital message for display on said displaying means.

☐ | Generate Collection | Print

A

L3: Entry 1 of 7   File: USPT   Jul 23, 2002

US-PAT-NO: 6424998
DOCUMENT-IDENTIFIER: US 6424998 B1

TITLE: System permitting the display of video or still image content on selected displays of an electronic display network according to customer dictates

DATE-ISSUED: July 23, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hunter; Charles Eric	Hilton Head Island	SC		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
World Theatre, Inc.	Morrisville	NC			02

APPL-NO: 09/ 315111   [PALM]
DATE FILED: May 18, 1999

PARENT-CASE:
CROSS REFERENCE TO RELATED APPLICATION This application is a continuation in part of Ser. No. 09/301,102, filed Apr. 28, 1999 pending.

INT-CL: [07] G06 F 15/167

US-CL-ISSUED: 709/207; 709/217, 709/218, 709/227, 705/26, 705/27
US-CL-CURRENT: 709/207; 705/26, 705/27, 709/217, 709/218, 709/227

FIELD-OF-SEARCH: 709/207, 709/217, 709/218, 709/219, 709/227, 709/234, 709/238, 709/240, 705/26, 705/27

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | Search ALL |

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	3373517	March 1968	Halperin	
☐	3376465	April 1968	Corpew	
☐	3941926	March 1976	Slobodzian et al.	
☐	4368485	January 1983	Midland	
☐	4559480	December 1985	Nobs	
☐	4734779	March 1988	Levis et al.	
☐	4761641	August 1988	Schreiber	
☐	4812843	March 1989	Champion, III et al.	
☐	5214793	May 1993	Conway et al.	
☐	5233423	August 1993	Jernigan et al.	
☐	5257017	October 1993	Jones et al.	
☐	5274762	December 1993	Paterson et al.	
☐	5469020	November 1995	Herrick	
☐	5486819	January 1996	Horie	
☐	5543856	August 1996	Rosser et al.	
☐	5612741	March 1997	Loban et al.	
☐	5630067	May 1997	Kindell et al.	
☐	5644859	July 1997	Hsu	
☐	5724062	March 1998	Hunter	
☐	5781734	July 1998	Ohno et al.	
☐	5845083	December 1998	Hamadani et al.	
☐	5848129	December 1998	Baker	
☐	5898384	April 1999	Alt et al.	340/825.36
☐	5934795	August 1999	Rykowski et al.	362/309
☐	5992888	November 1999	North et al.	283/56
☐	6073372	June 2000	Davis	40/124.16

OTHER PUBLICATIONS

Steven A. Morley, "Making Digital Cinema Actually Happen --What It Takes and Who's Going to Do It", Qualcomm Incorporated, Oct. 31, 1998.

ART-UNIT: 2132

PRIMARY-EXAMINER: Peeso; Thomas R.

ABSTRACT:

Commercial advertisers, such as consumer product companies and the advertising agents that represent them, directly access a network of thousands of large, high resolution electronic displays located in high traffic areas and directly send their own advertisements electronically to the network to be displayed at locations and times selected by the advertisers. In another application, operators of digital movie theaters have ongoing, continuous access to tens of thousands of movies that can be ordered in digital form for display on selected screens at their theaters at

selected times.

22 Claims, 4 Drawing figures

WEST

[Generate Collection]   [Print]

Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1.   Document ID: US 6424998 B1

L3: Entry 1 of 7   File: USPT   Jul 23, 2002

US-PAT-NO: 6424998
DOCUMENT-IDENTIFIER: US 6424998 B1

TITLE: System permitting the display of video or still image content on selected displays of an electronic display network according to customer dictates

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC |
| Draw Desc | Image |

☐ 2.   Document ID: US 6191825 B1

L3: Entry 2 of 7   File: USPT   Feb 20, 2001

US-PAT-NO: 6191825
DOCUMENT-IDENTIFIER: US 6191825 B1

TITLE: Electronic billboard replacement switching system

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | | KWIC |
| Draw Desc | Image |

☐ 3.   Document ID: US 5896230 A

L3: Entry 3 of 7   File: USPT   Apr 20, 1999

US-PAT-NO: 5896230
DOCUMENT-IDENTIFIER: US 5896230 A

TITLE: Lenticular lens with multidimensional display having special effects layer

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | | KWIC |
| Draw Desc | Image |

☐ 4.   Document ID: US 5781202 A

L3: Entry 4 of 7   File: USPT   Jul 14, 1998

US-PAT-NO: 5781202
DOCUMENT-IDENTIFIER: US 5781202 A

9/465730

End of Result Set

☐ | Generate Collection | | Print |

Y

L9: Entry 1 of 1   File: USPT   Mar 18, 1997

US-PAT-NO: 5612741
DOCUMENT-IDENTIFIER: US 5612741 A

TITLE: Video billboard

DATE-ISSUED: March 18, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Loban; Jerry M.	Grapevine	TX		
Ryng; Henry D.	Phoenix	AZ		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Curtis Mathes Marketing Corporation	Dallas	TX			02

APPL-NO: 08/ 148048   [PALM]
DATE FILED: November 5, 1993

INT-CL: [06] H04 N 5/66, H04 N 9/12

US-CL-ISSUED: 348/383; 348/840
US-CL-CURRENT: 348/383; 348/840

FIELD-OF-SEARCH: 348/383, 348/744, 348/745, 348/748, 348/750, 348/751, 348/756, 348/758, 348/761, 348/766, 348/778, 348/779, 348/781, 348/790, 348/794, 348/806, 348/807, 348/839, 348/840

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | | Search ALL |

1/31/03 3 4

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4295159	October 1981	Carollo et al.	348/761
☐	4425028	January 1984	Gagnon et al.	
☐	4650286	March 1987	Koda et al.	
☐	4715684	December 1987	Gagnon	
☐	4739567	April 1988	Cardin	359/460
☐	4749259	June 1988	Ledebuhr	
☐	4786146	November 1988	Ledebuhr	
☐	4866530	September 1989	Kalver	348/799
☐	4923280	May 1990	Clausen et al.	359/456
☐	4951131	August 1990	Lindahl	348/747
☐	5005950	April 1991	Morin	348/383
☐	5061921	October 1991	Lesko et al.	340/815.83
☐	5257017	October 1993	Jones et al.	348/744
☐	5296922	March 1994	Mitano et al.	359/457

ART-UNIT: 262

PRIMARY-EXAMINER: Lee; Michael

ABSTRACT:

A video billboard 10 includes one or more projection units 12 utilizing a liquid crystal light-valve-projector 32 to project images onto a lenticulated lens screen 34. The types of images to be displayed, along with the time of day in which the images are to be displayed, are controlled from a remote master transmitter 24. A plurality of projection units 12(a-d) can be mounted together to provide an enlarged image display area.

31 Claims, 10 Drawing figures

1/31/03 3